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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/527,960	03/15/2005	Frederic Claude Marie Piry	550-631	8566

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ARLINGTON, VA 22203

EXAMINER
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FAHERTY, COREY S

ART UNIT	PAPER NUMBER
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2183

MAIL DATE	DELIVERY MODE
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10/09/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/527,960

Applicant(s)

PIRY ET AL.

Examiner

Corey S. Faherty

Art Unit

2183

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 15 March 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 March 2005 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 03/15/2005
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### DETAILED ACTION

1. This office action is in response to the application filed on 03/15/2005.
2. Claims 1-12 are pending in the application and have been examined.

#### *Claim Objections*

3. Claims 2 and 8 are objected to because of the following informalities: The parentheses are not balanced, making the equation as written invalid. Appropriate correction is required.
4. Claim 7 recites “than” in line 4 and should recite “that”. Appropriate correction is required.

#### *Claim Rejections - 35 USC § 101*

5. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

6. Claims 2, 4, 6, 8, 10 and 12 are rejected under 35 U.S.C. 101 because the disclosed invention is inoperative and therefore lacks utility. Claims 2 and 8 recite the limitation “a new value  $Rd_i$  given by  $(\text{inverse}(X_i \text{ XOR } Y_i)) \text{ XOR } (\text{a value of } Rd_i \text{ currently stored}))$ ”. Because there is no requirement in the claim that the “value of  $Rd_i$  currently stored” is the value stored in one of the “three further registers”, the claim will not necessarily have the intended effect of masking the register-writing activity, and is therefore inoperative. Clarification of the claim language such that the claim more specifically states the intended invention is required. Claims 4, 6, 10 and 12 fail to resolve this deficiency.

*Claim Rejections - 35 USC § 112*

7. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

8. Claims 5 and 11 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The claims recite formulae for calculating the values to write to two shared dummy registers (“exclusive logical OR of  $X_i$  with  $Y_i$  and said inverse of the exclusive logical OR of  $X_i$  with  $Y_i$ ”), but no such formula is disclosed in the specification. Furthermore, the claim as written does not have the functional effect of masking processor activity as the invention is meant to do. It appears that claims 5 and 11 contain a typo, and the intent of the claims is to recite the same formulae as claims 2 and 8. For purposes of examination, the claims will therefore be read as including the same formulae as claims 2 and 8. Appropriate correction or clarification is required.

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Art Unit: 2183

10. Claims 4-6 and 10-12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

11. Claims 4-6 and 10-12 recite the limitation "said register bank". There is insufficient antecedent basis for this limitation in the claims.

12. Claims 5 and 11 recite numerous limitations for which no antecedent basis exists.

Appropriate correction or clarification is required.

*Claim Rejections - 35 USC § 103*

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

15. Claims 1, 3, 7 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pomet (U.S. Patent 6,424,196).

16. Regarding claims 1 and 7, Pommet discloses an apparatus for processing data [abstract], said apparatus comprising: a data processing register operable to store a data value [col. 1, lines 58-62; a flip-flop holds data]; a register writing circuit operable to store a data value to said data processing register [col. 1, lines 58-62; data is stored into the flip-flop]; and three or more further registers [col. 1, lines 58-59; a register contains multiple flip-flops]; wherein when said register write circuit writes a data value to said data processing register, said register write circuit also writes data values to three or more further registers such that a fixed relative number of bits within said data processing register and said three or more further registers as a whole transition from high to low and from low to high irrespective of what data value is being written to said data processing register and what data value was previously stored within said data processing register [col. 1 lines 58-62; data is written to multiple flip-flops at a time when data is written to a register; col. 2, lines 7-10; when data is written to a register, or multiple flip-flops, the number of switching events that occurs is always constant, because a switch occurs regardless of the data being written and the data that was previously stored].

Pommet does not explicitly disclose that a register contains three or more flip-flops. However, such registers are ubiquitous in processor design and their inclusion in the system of Pommet would have been obvious to a person of ordinary skill in the computer arts.

17. Regarding claims 3 and 9, Pommet discloses apparatus as claimed in claim 1, wherein said data processing register is one of a plurality of data processing registers of a register bank [col. 1, lines 58-62; a register contains multiple flip-flops].

*Allowable Subject Matter*

Art Unit: 2183

18. Claims 2, 4-6, 8 and 10-12 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 1st paragraph, 35 U.S.C. 112 2nd paragraph, and 35 U.S.C. 101 set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

19. The following is a statement of reasons for the indication of allowable subject matter: the most closely related art uses a method that masks a value that is written to a register. For instance, if a '1' is written to a register of the prior art, a '0' is also written to a ghost register so that a differential power analysis will not reveal the value of the data that was written. The claims of the instant application take this technique a step further by not only masking the value that is written, but also masking whether *any* change to the register occurs. For instance, in the method of the instant claims, if a '1' is written to a register, a '0' is again written to a local ghost register. In addition to this known functionality, if the data in the actual register was already '1' (and the data in the ghost register was already '0'), then instead of writing data to the actual register and its ghost register, the data is written to a pair of global ghost registers that ghost the actual register and the local ghost register. In this way, it will appear to a differential power analysis that a data transition occurred even if it actually did not. The prior art does not disclose this technique and it is therefore inventive.

### ***Conclusion***

20. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The cited references are closely related to the subject matter of the instant application and should be fully considered in any reply to this office action.

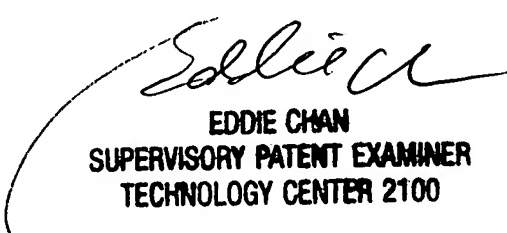
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Corey S. Faherty whose telephone number is (571) 270-1319. The examiner can normally be reached on Monday-Thursday and every other Friday, 7:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Chan can be reached on (571) 272-4162. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Corey S Faherty  
Examiner  
Art Unit 2183

CF



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